

IN THE CLAIMS:

Claim 1 (Original) A method for forming an alloy layer of silicon carbon on a silicon containing substrate comprising the steps of:

placing a wafer having a single crystalline silicon containing surface into a UHV CVD chamber,

heating said silicon containing surface to a temperature in the range from about 475° - 850° C, and

flowing a silicon containing gas and a carbon containing gas over said silicon containing surface whereby said silicon carbon alloy layer is formed .

Claim 2 (Original) The method of claim 1 wherein said UHV CVD chamber has a base pressure below 10^{-8} Torr.

Claim 3 (Original) The method of claim 1 wherein said carbon containing gas includes gas molecules having at least two carbon atoms.

Claim 4 (Original) The method of claim 1 wherein the oxygen in said silicon carbon layer is less than 1×10^{17} atoms/cc.

Claim 5 (Original) The method of claim 1 wherein said carbon containing gas is selected from the group of molecules containing unsaturated double or triple carbon-carbon bonds.

Claim 6 (Original) The method of claim 1 wherein said carbon containing gas is selected from the group consisting of ethylene, acetylene, propylene, butylene, pentene and mixtures thereof.

Claim 7 (Original) The method of claim 1 wherein said flowing gas is at a pressure in the range from about 1 to 50 millitorr.

Claim 8 (Original) The method of claim 1 wherein said flowing gases contain less than 1 ppm of contaminant gases containing oxygen.

Claim 9 (Original) The method of claim 1 wherein said carbon from said carbon containing gas is incorporated into said alloy crystal lattice substitutionally whereby said carbon is electrically active.

Claim 10 (Original) The method of claim 1 wherein said step of placing a wafer into said UHV CVD chamber includes placing a plurality of wafers.

Claim 11 (Original) The method of claim 1 wherein said step of flowing includes flowing a dopant containing gas selected from the group consisting of diborane, phosphine, arsine and mixtures thereof.

Claim 12 (Original) The method of claim 1 wherein said silicon carbon alloy is single crystalline and has an oxygen concentration of less than 1×10^{17} atoms/cc.

Claim 13 (Original) The method of claim 1 wherein said silicon carbon alloy is polycrystalline and has an oxygen concentration of less than 1×10^{17} atoms/cc.

Claims 14-59 (Cancelled)